

GREENING THE GREEN RUSH: HOW ADDRESSING
THE ENVIRONMENTAL IMPACT OF CANNABIS
LEGALIZATION CAN ENHANCE SOCIAL EQUITY AND
REMEDiate THE HARMS OF THE WAR ON DRUGS

BY

JOSE GARCIA-FUERTE* & WILLIAM GARRIOTT**

The legalization of cannabis in the United States has focused on creating regulated, for-profit commercial markets modeled on alcohol to replace the prohibition regime that held sway for most of the 20th Century. Like the fabled gold rush of the 19th Century, this new market opportunity has been a magnet for entrepreneurs and prospectors of all kinds seeking to make their fortune. And just like its predecessor, this new rush—the green rush—has left many people behind. Those left behind in the green rush have come disproportionately from the communities most likely to have been harmed by cannabis prohibition and the broader War on Drugs. Poor people and people of color, in particular, who continue to make up a disproportionate number of those subject to marijuana enforcement, have been both formally and informally excluded from the opportunities offered by legal cannabis.

To remedy this situation, there has been a push to make social equity a central feature of cannabis legalization and market regulation. Proponents of social equity hold that those disproportionately harmed by cannabis prohibition should disproportionately benefit from legalization and that the current approach has been engineered to leave such people behind. In this Article we provide a brief overview of social equity and highlight its current emphasis on expanding industry access, criminal record expungement, and tax revenue allocation. We then highlight an issue that is currently not part of the social equity conversation but should be: cannabis legalization’s environmental impact. As we show, there is growing evidence that the commercialization of cannabis comes with a significant environmental cost. This cost is once again born

*J.D., Lewis & Clark Law School (2023); B.A., Law, Politics and Society, Drake University (2020). Jose would like to thank his family for their continuous love and support in writing this article and the members of *Environmental Law* for providing valuable editorial assistance. jose.garcia-fuerte@outlook.com.

**Professor of Law, Politics and Society at Drake University. william.garriott@drake.edu.

disproportionately by poor communities and communities of color. It overlaps with longer histories of environmental injustice, including environmental racism and the inequities inherent to racial capitalism. As we show, integrating an environmental justice framework into the social equity paradigm holds the promise of addressing cannabis' environmental impact in a way that remains mindful of equity concerns. It likewise has the capacity to enhance current social equity efforts by providing new pathways and mechanisms to remediate the harms of the War on Drugs.

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INTRODUCTION

Laws governing the cannabis plant continue to change. The 21st Century in particular has seen robust efforts to legalize the cannabis plant and its derivatives. This movement, often referred to as marijuana legalization, has challenged a prohibition-centered regime that went virtually unquestioned for most of the 20th Century. While any number of approaches to legalization are possible, a market-based approach is taking hold in the United States. This approach uses commercial markets like those in place for alcohol to govern the production, distribution, and consumption of cannabis.¹ While this has allowed cannabis to move from a prohibited drug to a regulated commodity, it has caused states to prioritize the commodification of the plant over dismantling the old infrastructure of prohibition or addressing the broader harms of the War on Drugs.

¹ William Garriott, *Change Is in the Air: The Smell of Marijuana, After Legalization*, 45 L. & SOC. INQUIRY 995, 996 (2020).

The recent push for social equity within the cannabis industry reflects frustration with the limitations of the “regulate it like alcohol” approach.² As we discuss elsewhere, social equity advocates argue that those most harmed by the War on Drugs should be the ones receiving the greatest benefit from legalization.³ To date, the opposite has largely been true. Though poor people and people of color have disproportionately suffered under prohibition, it is those least likely to have been targeted—those who are wealthier and white—who have disproportionately benefited.⁴ Wealthy white people disproportionately occupy the most powerful spaces in the legal cannabis industry, make the most money, and exert the most influence over how the industry continues to evolve.⁵

To change this dynamic, social equity advocates have argued for a suite of policies we call the “social equity paradigm.” These policies are multifaceted and take various forms, but largely focus on three priorities: (1) increasing access to the industry for those excluded by the current approach; (2) addressing criminal records; and (3) (re)investing cannabis tax revenues into disproportionately impacted communities.⁶ All three priorities reflect the shortcomings of the market-based legalization model. They also reflect the emphasis on equity. Social equity advocates argue that a just outcome is more likely to result when policymakers recognize differences and tailor remedies to specific needs.⁷ In the context of legalization, this simply means that those disproportionately harmed by prohibition should receive disproportionate benefit under legalization.

Social equity advocates have seen significant success. The fact that most adult-use legalization states have adopted some version of the social equity paradigm clearly demonstrates this.⁸ But there are also significant challenges. Lawsuits have questioned the constitutionality of social equity provisions, arguing that they violate the Dormant Commerce Clause, equal protection, and/or Due Process provisions of the Constitution.⁹ We detail these challenges elsewhere.¹⁰ Here, we focus on another issue: the fact that many justice concerns are not included in the social equity paradigm as currently construed. One of the most significant is environmental justice.

² William Garriott & Jose Garcia-Fuerte, *The Social Equity Paradigm: The Quest for Justice in Cannabis Legalization*, __ SETON HALL LEGS. J. __ (forthcoming 2023) (manuscript at 4) (on file with authors) (footnote omitted).

³ *Id.* (manuscript at 14, 39).

⁴ *Id.* (manuscript at 13) (footnote omitted).

⁵ Jeremy Berke & Yeji Jesse Lee, *Top Executives at the 14 Largest Cannabis Companies are Overwhelmingly White Men, an Insider Analysis Shows*, INSIDER (Jun. 30, 2021), <https://perma.cc/LC9T-CZYN> (explaining how only seven percent of cannabis executive identify as Black and that there are more barriers to obtaining dispensary licenses for communities of color than white men).

⁶ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 5).

⁷ *Id.* (manuscript at 13–15).

⁸ MINORITY CANNABIS BUS. ASS'N, MCBA NATIONAL CANNABIS EQUITY REPORT 7 (2022), <https://perma.cc/EVB2-K8UL>.

⁹ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 39–47).

¹⁰ *Id.* (manuscript at 39–48).

There is a growing concern about the environmental impacts of the cannabis industry.¹¹ While additional research is needed, there is increasing evidence that the commercialization of cannabis is associated with a range of environmental harms.¹² Moreover, the same communities most likely to have disproportionately suffered under prohibition—low-income communities and communities of color—are just as likely to disproportionately suffer environmental harms.¹³ As discussed below, there are indicators that the cannabis market is already perpetuating environmental injustice in its surrounding communities with practices that exploit people and the natural environment.¹⁴ This continues familiar patterns of environmental racism and racial capitalism that predate the creation of the legal cannabis market but now seem to be part of it.¹⁵ At the same time, attending to issues of environmental justice presents a new opportunity to redress the racially disproportionate harms of the War on Drugs and the inequities of current legalization efforts, as well as an opportunity to close the gap between the communities impacted by prohibition and those who have experienced the most success in the legalized market.

This Article proceeds in three parts. Part I provides an overview of the social equity paradigm. Part II surveys environmental issues in cannabis. Part III provides an overview of the concept of environmental justice and its importance for the social equity paradigm and the broader quest for justice in and through cannabis legalization. We put particular emphasis on the shared concern with the disproportionate impact on low-income communities and communities of color. The conclusion provides final remarks and areas where the cannabis market might lead the way in modeling environmentally responsible practices rooted in equity and justice.

I. THE SOCIAL EQUITY PARADIGM

The social equity paradigm begins with the fact that the War on Drugs has disproportionately impacted low-income communities and communities of color.¹⁶ Cannabis played a central role in the build-up and roll-out of the War on Drugs, and its effects have continued in the wake of legalization.¹⁷ Between 2001 and 2010, there were more than 8 million

¹¹ Zhonghua Zheng, Kelsey Fiddes, & Liancheng Yang, *A Narrative Review on Environmental Impacts of Cannabis Cultivation*, J. CANNABIS RSCH., Aug. 6, 2021, at 3.

¹² See discussion *infra* Part II (discussing environmental issues in cannabis).

¹³ Katie Pyzyk, *Study: Low-Income Neighborhoods Disproportionately Feel Environmental Burdens*, SMART CITIES DIVE (Dec. 4, 2018), <https://perma.cc/226F-CKW4>.

¹⁴ See discussion *infra* Part II (discussing the exploitative practices currently in place).

¹⁵ See discussion *infra* Part III (discussing environmental justice and how the cannabis industry follows negative patterns and trends regarding environmental racism).

¹⁶ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 6, 9).

¹⁷ See *id.* (manuscript at 9) (describing the origins of cannabis prohibitions in the War on Drugs).

cannabis arrests, with 88% of those being for possession alone.¹⁸ However, these arrests were not equally distributed across racial demographics.¹⁹ On average, from 2001 to 2010, a Black person was 3.73 times more likely than a white person to be arrested for cannabis, despite comparable use rates.²⁰ These racial disparities in cannabis arrests have persisted into the legalization era.²¹ Though the number and rate of arrests dropped in states that legalized from 2010 to 2018, a Black person was still 3.64 times more likely to be arrested for cannabis.²²

Racial disparities were lower in states that had legalized cannabis²³ but their persistence shows that legalization alone cannot—and will not—redress the harms of the War on Drugs.²⁴ This is largely due to the market-based approach to legalization that has prioritized economic arguments over justice concerns.²⁵ While this approach was likely necessary to build the coalition needed for legalization to pass,²⁶ it has created problems of its own which social equity and other advocates address.

One of the most glaring problems has been that states did not apply changes in criminal law retroactively.²⁷ As a result, people convicted of cannabis-related crimes—including activities that were no longer crimes following legalization—did not receive any post-conviction relief.²⁸ Moreover, states used these same crimes, and resulting criminal records, to exclude people from participation in the legal cannabis market.²⁹ In Colorado, for instance, the law originally excluded people with a felony conviction from working in the legal cannabis industry for five years, and those with a felony drug conviction for ten.³⁰ This had the effect of disproportionately excluding low-income people and people of color from the economic opportunities presented by the new legal cannabis market, while letting those who avoided arrest and conviction launder their experience into a market-relevant skill set through licensure in the legal industry.³¹ Not only is this unjust—it also perpetuates the racial wealth

¹⁸ *Id.* (citing ACLU, THE WAR ON MARIJUANA IN BLACK AND WHITE: BILLIONS OF DOLLARS WASTED ON RACIALLY BIASED ARRESTS).

¹⁹ *Id.* (manuscript at 10–11).

²⁰ *Id.* (manuscript at 10) (citations omitted).

²¹ AM. CIV. LIBERTIES UNION, A TALE OF TWO COUNTRIES: RACIALLY TARGETED ARRESTS IN THE ERA OF MARIJUANA REFORM 5 (2020), <https://perma.cc/DR2H-H4QN>.

²² *Id.* at 5, 99.

²³ Black people were 1.7 times more likely to be arrested in legalization states compared to 3.2 times more likely in a non-legalized state. *Id.* at 6.

²⁴ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 11).

²⁵ Garriott, *supra* note 1 at 999–1000.

²⁶ *Id.* at 999.

²⁷ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 29) (giving the example of Colorado not providing “post-conviction relief” for people convicted).

²⁸ *Id.*

²⁹ *Id.* (manuscript at 17).

³⁰ *Id.* (manuscript at 18).

³¹ *Id.* (manuscript at 17).

and opportunity gaps in the United States.³² Wealthy white people, mostly men, have been able to access and enjoy major success in the cannabis industry, while the industry has largely excluded low-income people and people of color.³³ Enter the social equity paradigm.

A. Industry Access

The first prong of the social equity paradigm is increasing access to the legal cannabis industry for those whom prohibition had disproportionately harmed. Early legalizing states, concerned with perceived bad actors infiltrating the newly established market, excluded those with criminal convictions from working in the industry.³⁴ Additionally, with cannabis start-ups costing millions³⁵ and access to traditional finance off-the-table due to continued federal illegality, much of the money in the regulated industry today remains as private wealth.³⁶ However, few people have immediate access to the amount of cash and networks necessary to start and sustain a successful cannabis business. This is especially true for those burdened by the collateral consequences of criminal convictions and systemic discrimination.³⁷

The industry access prong of the social equity paradigm prioritizes laws and policies that enable those from disproportionately impacted

³² *Id.*

³³ Megan U. Boyanton, *Entrepreneurs of Color Fight for Fair Share of Legal Weed Wealth*, BLOOMBERG L. (Nov. 30, 2021), <https://perma.cc/4SQF-R9SA> (explaining that wealthy white people dominate the cannabis industry); Berke & Lee, *supra* note 5 (“White men comprise 70% of [executive positions] at the 14 largest publicly traded cannabis companies by market value in the US and Canada.”).

³⁴ See, e.g., COLO. REV. STAT. § 12-43.4-306 (repealed 2018) (banning anyone with a felony conviction from working in the industry for five years and those with felony drug convictions for ten years).

³⁵ Jasmin Prisc, *How to Start Your Cannabis Business in 2022*, SHOUTEM (Jul. 14, 2021), <https://perma.cc/HK2M-C5YU>.

³⁶ The continued federal illegality of cannabis means that these businesses do not have access to traditional financial instruments like business loans because banks fear being penalized for violating federal law. John Hudak & Aaron Klein, *Banks Don't Want to Work with Marijuana Companies. It's Time for that to Change*, BROOKINGS (Mar. 28, 2019), <https://perma.cc/3ZRU-7SUB>. Those seeking to establish their own cannabis business rely on their cash, angel investors, local credit-unions, and private grants for funding. Shariq Khan, *U.S. Pot Sellers Stash Cash as Banks Leave Them High and Dry*, REUTERS (May 23, 2021), <https://perma.cc/QT58-GPF5> (mentioning the bill that passed the House of Representatives “that would allow cannabis firms to have bank accounts, get loans and accept credit card payments” as a way to help the sector access more funding); Deborah Johnson, *Committee Blog: Fundraising Basics in the Cannabis Industry—Part 3*, NAT'L CANNABIS INDUS. ASS'N, <https://perma.cc/M939-TVS4> (last visited Mar. 15, 2023) (explaining that start-ups who have angel investors have a better chance at surviving and growing long term, with less risk than taking on debt); Kristian Foden-Vencil, *Small Oregon Credit Union Offers Banking to Marijuana Businesses*, OR PUB. BROAD. (Feb. 17, 2017), <https://perma.cc/6P67-5ZGK>; Jeannette Ward Horton, *Five POC-Owned Cannabis Businesses Receive Equity Grants*, PROSPER PORTLAND (Feb. 24, 2020), <https://perma.cc/MV29-DQCN> (stating that a private grant from NuLeaf Project is meant to “address the capital gap that business owners of color face and support business growth.”).

³⁷ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 18–19).

communities to enter the industry.³⁸ Such policies can take many forms but tend to center on creating special licensing, training, and funding opportunities for qualifying social equity applicants.³⁹ Preferential access to cannabis operating licenses would be particularly beneficial, as most states directly, or indirectly, limit the number of available licenses.⁴⁰ While defining who counts as a social equity applicant has been complicated—with definitions that vary from state to state—the universal goal is to narrow the racial wealth gap in cannabis through cannabis, thereby mitigating some of the harms of the War on Drugs.

B. Criminal Records

The second prong of the social equity paradigm prioritizes eliminating the criminal records of those convicted of cannabis crimes.⁴¹ The goal here is to mitigate the uneven impact of cannabis enforcement and to remove both the stigma and collateral consequences of a cannabis conviction. Most states limit the expungement or clearing of previous cannabis crimes to “low-level” offenses—usually those that are no longer crimes following legalization.⁴² Different states use different processes. Connecticut automatically expunges these “low-level” offenses.⁴³ In Colorado, the governor issues pardons.⁴⁴ Illinois divides cannabis offenses into three groups with different processes for each depending on the nature of the offense.⁴⁵ Several states—California, New York, and New Mexico—have taken the extra step of reforming their criminal laws so that the smell of cannabis can no longer be used as probable cause or

³⁸ Some states now offer technical support like training in industry-specific sectors or guidance through the complex application process. *Id.* (manuscript at 19, 19–20 n.102) (providing Washington state as an example of a state program aimed at assisting BIPOC applicants to enter the industry).

³⁹ *Id.* (manuscript at 19–20).

⁴⁰ *Id.* Some states have even set benchmarks to ensure that a certain percentage of disproportionately impacted communities are able to participate fully in the industry. *Id.* (manuscript at 20–23).

⁴¹ *Id.* (manuscript at 29).

⁴² *Id.* These range from possession or distribution of up to thirty grams to offenses up to four ounces. For examples of state qualifications for expungement of cannabis related convictions, see *Cannabis Expungement Information and Forms*, ILL. OFF. ST. APP. DEF. (OSAD), <https://perma.cc/8B4F-B5Y6> (last visited Jan. 23, 2023) (limiting qualification for automatic expungement to convictions related to thirty grams or less); *Connecticut Becomes 18th State to Legalize Marijuana for Adults*, NORML (Jun. 22, 2021), <https://perma.cc/QET8-LZG4> (stating that Connecticut’s law automatically expunged convictions involving up to four ounces).

⁴³ NORML, *supra* note 42.

⁴⁴ *Colorado Governor’s Pardon: A Long Shot Alternative to Colorado’s Harsh Expungement Laws*, L. OFF. H. MICHAEL STEINBERG, <https://perma.cc/J7V6-SPH2> (last visited Mar. 16, 2023).

⁴⁵ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 31) (internal citations omitted). In Illinois, offenses in the lowest category are automatically expunged, but the process may not be complete until 2025. OSAD, *supra* note 42. Individuals with offenses in the highest category must file a Motion to Vacate and Expunge in court. *Id.*

otherwise further a criminal investigation.⁴⁶ It is hoped that these efforts will remove the lingering harms of the prohibition era, particularly for people convicted of offenses that are no longer crimes following legalization.

C. Revenue Distribution

The third prong of the social equity paradigm is to distribute the tax revenue from legalized cannabis sales to socially beneficial uses, particularly in underserved communities.⁴⁷ Communities that experience disproportionate drug enforcement also often suffer from broader economic challenges, including public divestment.⁴⁸ As a result, social equity advocates argue that the billions of dollars in tax revenue generated from legal cannabis sales should be directed disproportionately towards disproportionately impacted communities.⁴⁹ Here again, specific policies vary from state to state. Not only do states differ in how they define “disproportionately impacted communities,” but they also differ in how they distribute the revenue. New York, for example, distributes cannabis tax revenue to community-based nonprofits and local governments.⁵⁰ Illinois dedicates a percentage of cannabis sales tax to support disproportionately impacted communities through grants for community programming, substance abuse treatment and prevention, and mental health services.⁵¹ Colorado’s Amendment 64 requires the first

⁴⁶ See *United States v. Martinez*, 811 F. App’x. 396, 397 (9th Cir. 2020) (holding that, regarding California, the passage of Proposition 64, which legalized possession of up to one ounce of marijuana, invalidated prior precedent allowing for the odor of marijuana alone to provide probable cause); N.Y. PENAL § 222.05(3)(a–b) (Consol. 2021) (“[N]o finding or determination of reasonable cause to believe a crime has been committed shall be based solely on evidence of . . . (a) the odor of cannabis; (b) the odor of burnt cannabis”); N.M. STAT. ANN. § 26-2C-25(C) (West 2021) (directing that neither the smell of cannabis nor the suspicion of possession exceeding the permitted amount gives rise to “articulable suspicion of a crime” and cannot serve as basis to stop, detain, or search a person).

⁴⁷ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 33–39).

⁴⁸ See, e.g., *id.* (manuscript at 14–15) (supporting that low-income communities and communities of color suffer disproportionately from marijuana prohibition); Margery Austin Turner & Solomon Greene, *Causes and Consequences of Separate and Unequal Neighborhoods*, URBAN INST., <https://perma.cc/9SBB-ZB73> (last visited Mar. 17, 2023) (“The racial segregation of neighborhoods and the denial of capital to people of color fueled the geographic concentration of poverty, disinvestment by public and private institutions, and neighborhood distress.”).

⁴⁹ Garriott & Garcia-Fuerte, *supra* note 2, (manuscript at 17) (explaining how social equity advocates want communities where disproportionate enforcement during prohibition occurred to be where disproportionate investment goes following legalization); Martin Z. Braun, *Cannabis Taxes May Generate \$12 billion for U.S. States by 2030, According to Barclays Strategists*, FORBES (Dec. 3, 2021), <https://perma.cc/ZQH8-F5H4> (“Cannabis tax revenue generated more than \$2 billion in the U.S. [in 2020].”).

⁵⁰ N.Y. STATE FIN. LAW § 99-ii(2–3), 99-kk(4) (McKinney 2022). These funds can be directed to housing, community banking, and childcare. *Id.* § 99-kk(4).

⁵¹ Tom Schuba, *Illinois’ Weed Tax Windfall Tops \$560 Million. Here’s Where the Money Goes.*, CHICAGO SUN-TIMES (Dec. 7, 2021), <https://perma.cc/GVF7-T643>. One of Illinois’ most notable programs is the Healing Illinois Initiative, a racial-healing program intended to

\$40 million of cannabis tax revenues go towards funding school construction projects.⁵² Amendment 64 also uses a percentage of revenues each year to fund various efforts that can improve the health and safety of underserved communities.⁵³ No matter the approach, the goal is to mitigate the harms of prohibition using the spoils of legalization.

II. ENVIRONMENTAL ISSUES IN CANNABIS

The current focus on social equity is appropriate. However, there are a host of other issues that fall outside the scope of the social equity conversation as currently construed. There are important health issues,⁵⁴ work and labor issues,⁵⁵ immigration issues,⁵⁶ and general human rights issues⁵⁷ that all remain un- or under-addressed. In this Part we focus on environmental issues. Not only are these issues some of the most pressing and least appreciated aspects of cannabis reform, but they also pose a fundamental challenge to both the market-based approach of current cannabis legalization policy and, by extension, to the social equity paradigm.

The environmental impact of cannabis cultivation has received limited attention. Recent research, field studies, and literature reviews, however, have revealed a concerning relationship between cannabis cultivation and the environment.⁵⁸ To be clear, it is not cannabis

build and advance the knowledge of racial healing across the state and build the foundation for anti-racism in the state. *Id.*; *HEALING ILLINOIS: Building a Bridge to a Racially Equitable Illinois*, ILL. DEP'T HUM. SERVS., <https://perma.cc/ATG8-DUGZ> (last visited Mar. 17, 2023). By way of comparison, Connecticut directs funds to municipalities to be used for education, supporting reentry services for the formerly incarcerated, and funding mental health and addiction services. Anna Elizabeth, *Recreational Marijuana Law will Phase in Funding of Social Equity and Substance Abuse Programs*, CONN. EXAM'R (Jul. 1, 2021), <https://perma.cc/5CG6-ALZ3>.

⁵² *Marijuana Tax Revenue and Education*, COLO. DEP'T EDUC., <https://perma.cc/25SN-VGYH> (last visited Mar. 17, 2023).

⁵³ *Id.*

⁵⁴ See, e.g., Nicole Huberfeld, *Health Equity, Federalism, and Cannabis Policy*, 101 BOS. U. L. REV. 897, 912 (2021) ("Disparate enforcement of drug use has measurably harmed health by, for example, cutting off needed access to medical care for people targeted by law enforcement and overincarcerating populations already disadvantaged by structural racism and health disparities both within the criminal justice system and in the health care system.") (internal citation omitted).

⁵⁵ See, e.g., Marty Otañez & Jassy Grewal, *Health and Safety in the Legal Cannabis Industry Before and During COVID-19*, 30 NEW SOLS.: J. ENV'T & OCCUPATIONAL HEALTH POL'Y 311, 315 (2021) (discussing one cannabis worker's experience in the workplace).

⁵⁶ See, e.g., IMMIGRANT LEGAL RES. CTR., IMMIGRANTS AND MARIJUANA 3 (2021), <https://perma.cc/9L4P-D4F3> (discussing how possession of legal marijuana may negatively affect one's immigration status).

⁵⁷ See, e.g., Scottie Barnes, *Cartels Using Narco Slaves to Grow Illegal Marijuana on Industrial Scale in Oregon*, USNN WORLD NEWS (Nov. 2, 2021), <https://perma.cc/LC6Q-7VZC> (stating that Oregon's legal cannabis market "is cultivating an ecosystem of international organized crime, human trafficking, and environmental degradation.").

⁵⁸ See, e.g., Yvonne Everett, *A Challenge to Socio-Ecological Resilience: Community Based Resource Management Organizations' Perceptions and Responses to Cannabis Cultivation in Northern California*, 40 HUMBOLDT J. SOC. RELS. 89, 94 (2018) ("The rapid

cultivation *per se* that is the problem, but rather, cannabis cultivation at a *commercial scale*.⁵⁹ This makes environmental issues particularly challenging to address, as both the current approach to legalization and to social equity presume the very large-scale production that contributes to contemporary environmental problems.

There are six major areas of environmental impact related to cannabis cultivation: (1) energy use; (2) water use; (3) pesticide use; (4) air quality; (5) change in surface land; and (6) water pollution.⁶⁰ We provide an overview of each area, though they overlap significantly. We begin, however, by looking at contemporary cultivation practices, as it is these that are the primary source of impact.

A. Cultivation Practices and Environmental Harms

Large-scale cannabis cultivation is a resource-intensive operation. Like any other plant, cannabis requires light, water, and nutrients. What intensifies the industry's resource consumption is the fact that a lot of cannabis is grown indoors.⁶¹ A typical cannabis cultivation center uses electric lights, municipal water, and specialized fertilizer and nutrients.⁶² Cultivators precisely control the temperature, humidity, and airflow to optimize plant growth—powered completely by the electric grid.⁶³ Old warehouses have become a popular choice for cultivation facilities, as

expansion of cannabis cultivation threatened to . . . dewater[] and pollut[e] streams, degrad[e] watersheds, kill[] wildlife and destroy[] forests”).

⁵⁹ See, e.g., *id.* at 98 (explaining that cannabis production's “[e]ffects of water diversions and degradation of habitat for fish species listed under the state and federal Endangered Species Act are of major concern, especially during the summer low flow period where cultivation demands can exceed streamflow.”) (internal citation omitted).

⁶⁰ Ariani C. Wartenberg, Patricia A. Holden, Kekia Bodwitch, Phoebe Parker-Shames, Thomas Novotny, Thomas C. Harmon, Stephen C. Hart, Marc Ceutel, Michelle Gilmore, Eunha Hoh & Van Butsic, *Cannabis and the Environment: What Science Tells Us and What We Still Need to Know*, 8 ENV'T SCI. & TECH. LETTERS 98, 100 (2021). There are environmental challenges within retail practices as well. For instance, many states have packaging requirements designed to enhance safety that generate significant waste. However, these issues are beyond the scope of this Article.

⁶¹ *Id.* at 98–99.

⁶² *Id.* at 99–100; see Erik Collado, *Best Water for Growing Plants: Cannabis*, GROW BARATO, <https://perma.cc/WU8B-MANV> (last visited Mar. 18, 2023) (discussing cannabis irrigation options and classifying municipal (tap) water as “one of the most used types of water when it comes to watering cannabis”); Dipak Hemraj, *The 6 Best Fertilizers That'll Help You Grow Marijuana*, LEAFWELL (Sept. 21, 2022), <https://perma.cc/C6Y6-635B> (discussing the need for specialized fertilizers in growing cannabis given the unique needs of the plant).

⁶³ See *Grow Room Climate Control: Five Steps for Better Yields*, QUEST CLIMATE (Jul. 22, 2021), <https://perma.cc/9XPZ-UN44> (discussing temperature, airflow, and humidity control as three crucial aspects of setting up a grow room and giving tips to growers); Colin A. Young, *Indoor Cannabis Grow Centers Draining Electricity*, WBUR NEWS (Jun. 1, 2021), <https://perma.cc/AW84-C6M7> (quoting state government discussions about electric grid draws for cannabis operations being 10 percent of all grid power); Gordon Friedman, *Indoor Pot Grows Stain Electric Grid*, STATESMAN J. (Nov. 5, 2015), <https://perma.cc/HN6H-4SUE> (discussing impacts of indoor cannabis operations on the grid power and stating “that indoor grow operations from legal marijuana businesses have taken grids above capacity”).

most provide thousands of square feet of windowless space.⁶⁴ Indeed, cannabis entrepreneurs pride themselves on the fact that they have converted unused warehouses in neglected industrial zones into productive cultivation operations.⁶⁵

There are several reasons why indoor growing has become the norm. One is the legacy of prohibition, which created a culture of clandestine cultivation in basements, closets, and other hidden spaces.⁶⁶ Another reason is the way states first imposed regulations on the industry. In Colorado, for instance, the state initially required businesses to be vertically integrated, that is, growing all the flower they would sell in their stores themselves.⁶⁷ To minimize cost and maximize efficiency, many chose to house their cultivation facility in the same building as their retail shop.⁶⁸

States also gave local jurisdictions the choice of whether to allow licensed cannabis businesses to operate within their borders; most jurisdictions have chosen not to allow them.⁶⁹ As a result, cultivation operations in each state are disproportionately concentrated in a few jurisdictions.⁷⁰ These are often more densely populated areas, ill-suited

⁶⁴ See, e.g., Dima Williams, *Here Is What You Need To Know Before You Buy A Former Weed Growing House*, FORBES (Apr. 20, 2020), <https://perma.cc/M9WK-B6NX> (explaining that “dispensaries are often willing to pay top dollar for warehouses to anchor their growing operations.”); see, e.g., *Marijuana Producers Gobble Up Warehouse Space in Denver Area*, WALL STREET J. (Aug. 25, 2015), <https://perma.cc/J9XT-NSS9> (explaining that “growers and distributors have gobbled up most of the available warehouse space in the Denver area”); Oliver Milman, *Not So Green: How the Weed Industry Is A Glutton For Fossil Fuel*, THE GUARDIAN (Jun. 20, 2017), <https://perma.cc/7BRU-PS3S> (demonstrating that growers prefer windowless warehouses where they can control conditions).

⁶⁵ See, e.g., Brit Morse, *Entrepreneurs Turned an Old Shoe Factory Into a Cannabis Lab. It's Now Among the Largest Growers in Massachusetts*, INC. 5000 (Aug. 17, 2021), <https://perma.cc/T9TF-JQVP> (demonstrating how one grower was proud of converting an old warehouse into a successful cannabis business, even though they did not originally want to get into the industry).

⁶⁶ Nick Johnson, *American Weed: A History of Cannabis Cultivation*, 48 ECHOGÉO, Apr.–June 2019, at 13.

⁶⁷ Bailey Rose Campbell, *Fall Research. Expo 2020—The Cannabis Industry: Vertical Integration Laws*, U. PA. (Sept. 17, 2020), <https://perma.cc/JA99-GSZ6> (“Some states, like Colorado, have had [vertical integration] be a requirement for dispensaries . . . for reasons such as product quality.”); see also *Cannabis Dictionary: Flower*, N. LIGHT CANNABIS CO., <https://perma.cc/Q9CX-D55V> (last visited Mar. 18, 2023) (defining flower as the “smokable, trichome-covered part of the female cannabis plant.”).

⁶⁸ Campbell, *supra* note 67, at 4:05 (discussing how it is easier, and cheaper, to check the site for quality assurance when it is grown where it is also sold).

⁶⁹ See, e.g., *Record of Cities/Counting Prohibiting Licensed Recreational Marijuana Facilities*, OR. LIQUOR CONTROL COMM’N, <https://perma.cc/LS4K-QAYB> (last visited Mar. 19, 2023) (noting that the majority of local jurisdictions in Oregon have chosen not to allow cannabis businesses; only one “city/county” allows cannabis production, processing, and sale (wholesale and retail)—John Day).

⁷⁰ See, e.g., *Marijuana Business Licenses Approved as of 2/15/2023*, OR. LIQUOR CONTROL COMM’N [hereinafter *Approved Or. Marijuana Businesses*], <https://perma.cc/Z3DH-GPYX> (last visited Mar. 19, 2023) (showing all retailers, wholesalers, producers, and processors by county in Oregon—a few counties, such as Clackamas, Lane, Josephine, Jackson, Multnomah, and Washington are home to a large bulk of operations).

to outdoor growing.⁷¹ Furthermore, many states and local governments require that cultivation take place indoors within closed, locked, and monitored spaces.⁷² This reflects the fact that there was more concern with public safety than environmental impact when lawmakers drafted the regulations.

Perhaps the most significant reason indoor growing has become a common approach is because indoor cultivation provides a level of control over the growing process that cultivators cannot achieve outdoors. Cultivators can precisely regulate the amount of light, water, and nutrients their plants receive. There are no cloudy days, no early frosts. There are never dry spells, heavy rains, or windstorms; there are no seasons, so cultivators can grow cannabis year-round, on a predictable schedule that is essential to meeting orders and keeping the shelves reliably stocked at retail stores.⁷³

Cannabis grown indoors even looks different than outdoor-grown cannabis.⁷⁴ The bud or flower has a stickier appearance that customers find desirable and have come to expect.⁷⁵ Cannabis grown outdoors, by contrast, tends to be tougher and “doesn’t have the same sticky feel you see on Instagram,” according to Ben Gelt of the Cannabis Certification Council, an organization that promotes sustainable practices within the cannabis industry.⁷⁶

Even if it is less common, outdoor cultivation is still a component of the legal cannabis industry. In some areas, outdoor cultivation operations generating the most significant environmental impact are unlicensed grows—those operating outside of the regulated industry.⁷⁷ These

⁷¹ Compare Oregon County Map and Population List in Excel, SOMEKA, <https://perma.cc/MS7Y-8F7T> (last visited Mar. 19, 2023) (displaying the top ten counties ranked by population—including Multnomah, Washington, Clackamas, Lane, and Jackson), with Approved Or. Marijuana Businesses, *supra* note 70 (listing marijuana operations by county), to demonstrate the trend of disproportionately concentrated cultivation operations in dense regions of states.

⁷² Martha Harrell Chumbler, *Land Use Regulation of Marijuana Cultivation: What Authority Is Left to Local Government*, 49 URBAN LAW. 505, 517 (2017).

⁷³ See Tiney Ricciardi & Megan Ulu-Lani Boyanton, *As Harvest Season Winds Up, Many Cannabis Companies Prefer to Grow Outdoors, Despite Challenges*, DENVER POST (Oct. 17, 2022), <https://perma.cc/K2MB-N2H3> (noting that flower, the most popular consumer choice, is typically grown indoors, when not used for extraction, because indoor grows are not subject to weather and pest vulnerabilities enabling growth of the “highest quality of flower possible”).

⁷⁴ Sam Brasch, *Growing Cannabis Indoors Has A Big Climate Impact. So Why Doesn't The Industry Go Outside?*, CPR NEWS (Apr. 6, 2021), <https://perma.cc/C7RY-2D4J> (“While outdoor cannabis might not require as much energy, the final “bud” or “flower” tends to have a tougher, less commercially appealing appearance.”).

⁷⁵ *Id.*

⁷⁶ *Id.* Ben Gelt is the Board Chair of the Cannabis Certification Council which “is a nonprofit standard holding body whose mission is to educate the industry and consumers about sustainable and quality practices.” *About the Council*, CANNABIS CERTIFICATION COUNS., <https://perma.cc/5L9W-7C5P> (last visited Mar. 18, 2023).

⁷⁷ Gerta M. Wengert, J. Mark Higley, Mourad W. Gabriel, Heather Rustigain-Romsos, Wayne D. Spencer, Deana L. Clifford, & Craig Thompson, *Distribution of Trespass Cannabis Cultivation and its Risk to Sensitive Forest Predators in California and Southern Oregon*,

unlicensed operations are known as “trespass grows,” and their illegal status exacerbates the environmental harm of commercial cannabis cultivation.⁷⁸ Not only are trespass grows evading regulations and compliance monitoring, but their need to remain hidden creates additional disincentives to adopt practices that would minimize the environmental impact of their operations. This is particularly pronounced in the areas of water and energy procurement, land management, and waste disposal.⁷⁹

B. Energy Use

Indoor cultivation facilities require a significant amount of energy to run. For instance, a 5,000 square foot cultivation facility in Boulder, Colorado uses approximately 41,808 kilowatts (kWh) of electricity a month.⁸⁰ By contrast, “[t]he average Colorado home uses about 800 [kWh] per month.”⁸¹ Statewide, cannabis cultivators in Colorado use approximately 733,200 megawatts (MWh) of electricity each year—enough electricity to power 76,400 homes.⁸² Additionally, as the industry has grown, so has its electrical use. Between 2012 and 2016, cannabis cultivation in Denver, Colorado grew from 1.5% to almost 4% of the city’s total electrical use.⁸³

All of this has given the industry a rather sizable carbon footprint. Researchers at Colorado State University recently estimated that the cannabis cultivated indoors now accounts for over 1.3% of Colorado’s total greenhouse gas emissions.⁸⁴ For context, coal mining accounts for 1.8%.⁸⁵ This estimate includes everything that goes into industrial-scale cannabis production, including electricity, natural gas, water, and fertilizers, as well as all that goes into producing items or making them available for use in the first place.⁸⁶

16 PLOS ONE, Sept. 2021, at 14–15 (2021) (discussing “[t]respass cannabis cultivation” and how it harms the habitat of endangered and threatened species).

⁷⁸ *Id.* at 15.

⁷⁹ Wartenberg et al., *supra* note 60, at 100–02 (exploring the effects of illegal trespass growing on the environment and wildlife due to the unregulated pesticide and energy use, and air and water pollution); see also *Environmental Impacts of Illegal Marijuana Cultivation*, 6.1 CONSERVATION FRONTIERS 1, 3–4 (2017) (discussing the prevalence of hazardous and nonhazardous wastes left behind at illegal cannabis grow spots).

⁸⁰ Jonathan Thompson, *Cannabis Has a Carbon Problem*, COLO. TIMES RECORDER (Jun. 1, 2021), <https://perma.cc/D6M2-8DT5>.

⁸¹ *Id.*

⁸² *Id.*

⁸³ Grace Hood, *Nearly 4 Percent Of Denver’s Electricity Is Now Devoted To Marijuana*, CPR NEWS (Feb. 19, 2018), <https://perma.cc/UVS8-WCLH>.

⁸⁴ Hailey M. Summers, Evan Sproul, & Jason C. Quinn, *The Greenhouse Gas Emissions of Indoor Cannabis Production in the United States*, 4 NATURE SUSTAINABILITY 644, 648 (2021).

⁸⁵ *Id.*

⁸⁶ *Id.* at 644.

The researchers also found that energy consumption varied from state to state. Even with indoor growing, location made a big difference on greenhouse gas emissions.⁸⁷ Cannabis grown in Colorado, for instance, tends to produce more emissions due to the state's fossil fuel-reliant energy grid and significant temperature swings, which create more demand for heating and cooling.⁸⁸ By contrast, cannabis grown in Southern California produces about half the emissions of Colorado due to the state's milder climate and the higher proportion of renewable energy powering its electrical grid.⁸⁹

However the study's most significant finding was that practices unique to indoor growing account for over 80% of the emissions produced by indoor cannabis cultivation.⁹⁰ This creates a significant dilemma for the industry: While outdoor growing uses less energy, it is more difficult and produces a product that is less attractive to consumers. Additionally, in many cases, outdoor growing is just not possible under current law.

C. Water Use

Cannabis cultivation also requires a lot of water. Here, too, there are differences between indoor and outdoor cultivation. Outdoor cultivation, at least in the summertime in California, can take roughly twice as much water compared to indoor operations during the growing season.⁹¹ That said, cannabis plants consume a disproportionately large amount of water wherever they are grown.⁹² A single plant grown indoors requires about 450 gallons (1,703 liters) from seed to harvest.⁹³ This is more water than

⁸⁷ *Id.* at 644–46, fig. 1.

⁸⁸ *Id.* at 645–46, 648 (explaining that Colorado experiences significant temperature swings which alters demand for heating and cooling); *Colorado: State Energy Profile*, U.S. ENERGY INFO. ADMIN. (Apr. 21, 2022), <https://perma.cc/U6VC-M8GA> (showing that about 68% of Colorado's energy grid is reliant on fossil fuels).

⁸⁹ Summers et al., *supra* note 84, at 645–46, fig. 1–2 (showing that California's indoor cannabis production results in about half of the emissions and greenhouse gas emission life cycles as Colorado); *California: State Energy Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN. (Mar. 17, 2022), <https://perma.cc/K3VW-K7FM> (“California is second only to Texas in the combined total electricity generation from all renewable resources . . . [additionally,] most of California's more densely populated areas are dry and relatively mild for much of the year.”) (internal citations omitted).

⁹⁰ Summers et al., *supra* note 84, at 648 (stating that “practices directly linked to indoor cultivation methods, specifically indoor environmental control, high intensity grow lights and the supply of CO₂ for increased plant growth[]” are main causes for the emissions produced).

⁹¹ See Zhonghua Zheng, Kelsey Fiddes, & Liangchen Yang, *A Narrative Review on Environmental Impacts of Cannabis Cultivation*, J. CANNABIS RSCH., Aug. 6, 2021, at 3 (referencing a California survey that found water use for outdoor cultivation was roughly double that of indoor cultivation in August and September).

⁹² *Id.* at 2.

⁹³ Vanda Felbab-Brown, *Pot, Water Theft, and Environmental Harms in the US and Mexico*, BROOKINGS (Apr. 12, 2021), <https://perma.cc/FJN8-KRN4>. Note that this source rounds the conversion of 450 gallon up to 1,710 liters however, the accurate conversion is included in the text above.

many commodity crops. For example, cannabis has double the water needs of maize, soybean, and wheat.⁹⁴

Sourcing water for cannabis cultivation is a significant issue. Indoor grows often rely on municipal water systems.⁹⁵ Outdoor cultivation, including by unauthorized growers, typically cannot rely on such systems. Most cultivators thus divert surface water for their farms.⁹⁶ There has not been a nationwide quantitative study on the total number of authorized water diversions compared to unauthorized ones. However, a California study found that unauthorized surface water diversions were more than double the number of authorized ones for the four watersheds studied.⁹⁷ This means that cannabis cultivation alone often dries up water sources meant to sustain multiple uses, including agriculture, sustenance, and recreation. Groundwater wells are also targets. In fact, some studies found that groundwater diversion may be the water source for many farms in Northern California.⁹⁸ If groundwater diversion continues at its current rate, it has the potential to contribute up to 1.9% of monthly stream depletion after fifty years.⁹⁹

The situation is similar in Oregon. In the summer of 2021, unauthorized water diversions completely dried up Deer Creek and its aquifers, leaving water right holders without any water for their first-in-time beneficial use.¹⁰⁰ Residents from the hotspots of these unauthorized operations mentioned that their well-water levels have dropped significantly because of unauthorized cannabis cultivation.¹⁰¹ Additionally, reduced water levels due to water theft for unauthorized grow operations may also pose a risk to the threatened coho salmon.¹⁰²

All of this is taking place against the backdrop of an ever-changing climate and rising temperatures independently causing droughts. As of 2020, about “one-sixth of river basins in the United States are unable to

⁹⁴ Zheng et al., *supra* note 91, at 2.

⁹⁵ See, e.g., Kristin Knetzer, *Cannabis Cultivation and Water Use: The Push for Sustainability*, U. DENVER WATER L. REV. (Apr. 27, 2022), <https://perma.cc/RLH3-78A4> (noting that most indoor cannabis grows in Colorado use municipal water sources).

⁹⁶ Scott Bauer, Jennifer Olson, Adam Cockrill, Michael van Hattem, Linda Miller, Margaret tauzer, & Gordon Leppig, *Impacts of Surface Water Diversions for Marijuana Cultivation on Aquatic Habitat in Four Northwestern California Watersheds*, 10 PLOS ONE, Mar. 2015, at 2.

⁹⁷ See *id.* at 15 (“The total number of registered, active diversions on file with the [State Water Board] account less than half of the number of parcels . . . that were visible from aerial imagery.”).

⁹⁸ Wartenberg et al., *supra* note 60, at 101.

⁹⁹ *Id.*

¹⁰⁰ Andrew Selsky, *Illegal Marijuana Farms Take West’s Water in ‘Blatant Theft’*, ASSOCIATED PRESS NEWS (Sept. 17, 2021), <https://perma.cc/M6ZJ-549S>.

¹⁰¹ See, e.g., Barnes, *supra* note 57 (sharing that one constituent’s well water level dropped from a 25-year average of 35 feet to 75 feet deep after a neighbor started to grow cannabis).

¹⁰² NAT’L OCEANIC & ATMOSPHERIC ADMIN. FISHERIES, FINAL RECOVERY PLAN FOR THE SOUTHERN OREGON/NORTHERN CALIFORNIA COAST EVOLUTIONARILY SIGNIFICANT UNIT OF COHO SALMON 3-27 (2014) [hereinafter NOAA FINAL RECOVERY PLAN], <https://perma.cc/W9JL-BMSN>.

consistently meet societal water demands while also providing sufficient water for the environment.”¹⁰³ In Oregon, outdoor cannabis cultivation typically happens during the summer season when the climate is at its driest.¹⁰⁴ In 2021, Oregon experienced its driest year on record—it was also the driest year in the Pacific Northwest since 1924.¹⁰⁵ Water diversions for unauthorized grows exacerbates the dropping water levels caused by climate change.

Recycled water systems can reduce water use significantly (from six gallons a day per plant to under two), thus some jurisdictions such as Sonoma County, California, already require them.¹⁰⁶ However, with a typical cost of \$50,000, they are expensive to install.¹⁰⁷ This creates a financial disincentive where such systems are not required and makes the industry less accessible where they are.

D. Pesticide Use

Pesticides are a standard component of industrial agriculture, and cannabis cultivation is no exception.¹⁰⁸ If not managed properly, these substances pose a threat to workers, wildlife, and the ecosystems of which they are a part.¹⁰⁹ Federal law regulates pesticide use in agriculture.¹¹⁰ But, because cannabis remains federally illegal, federal agencies have not issued guidelines on appropriate pesticide use.¹¹¹ As a result, cultivators are left to follow state regulations, if any, and to use their own best

¹⁰³ Landon T. Marston, Gambhir Lamsal, Zachary H. Ancona, Peter Caldwell, Brian D. Richter, Benjamin L. Russel, Richard R. Rushforth & Kyle Frankel Davis, *Reducing Water Scarcity By Improving Water Productivity in the United States*, 15 ENV'T RSCH. LETTERS, Sept. 2020, at 8 (internal citation omitted).

¹⁰⁴ See *Harvest, Price, & Sales Market Data*, OR. LIQUOR & CANNABIS COMM'N, <https://perma.cc/G69R-MV7J> (last visited Mar. 19, 2023) (identifying the fall, specifically October, as peak harvest season). Additionally, summer is typically the driest season in Oregon, with half of the annual precipitation occurring during December to February. *Climate of Oregon*, W. REG'L CLIMATE CTR., <https://perma.cc/Q4QK-CQ62> (last visited Mar. 19, 2023).

¹⁰⁵ *Drought Status Update for the Pacific Northwest*, NAT'L INTEGRATED DROUGHT INFO. SYS. (Jul. 29, 2021), <https://perma.cc/DZ4Z-YQE6>.

¹⁰⁶ Felbab-Brown, *supra* note 93.

¹⁰⁷ *Id.*

¹⁰⁸ ENV'T PROT. AGENCY, PESTICIDES INDUSTRY SALES AND USAGE: 2008–2012 MARKET ESTIMATES 4–12 (2017), <https://perma.cc/XZ5P-YKKQ> (showing pesticide use are prolific and has only increased throughout industrial agriculture over the years); see also Brooke Borel, *The Wild West of Marijuana Pesticides*, ATLANTIC (Aug. 31, 2015), <https://perma.cc/F2P8-23FC> (explaining that cannabis cultivation commonly uses pesticides at rates “higher than what’s typically allowed for edible or smokable products.”).

¹⁰⁹ Chistos A. Damalas & Ilias G. Eleftherohorinos, *Pesticide Exposure, Safety Issues, and Risk Assessment Indicators*, 8 INT'L J. ENV'T RSCH. & PUB. HEALTH 1402, 1403–05, 1411–12 (2011).

¹¹⁰ Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 138–138i.

¹¹¹ Nate Setlenrich, *Into the Weeds: Regulating Pesticides in Cannabis*, 127 ENV'T HEALTH PERSP., April 2019, at 042001-2.

judgment when deciding which pesticides to apply and how to apply them.¹¹²

In indoor cultivation facilities, there are potential risks to workers and municipal waterways.¹¹³ The risks are even greater with outdoor cultivation facilities. Pesticide and rodenticide use in outdoor cannabis cultivation harms wildlife and pollutes waterways.¹¹⁴ Researchers have paid particular attention to unlicensed cultivators, which often operate on public lands.¹¹⁵ To protect their crops from wildlife, these trespass growers will use anticoagulant rodenticides to kill rodent pest populations.¹¹⁶ On top of animals being attracted to cannabis plants with these dangerous rodenticides, trespass growers also litter their grow site with food and packaging.¹¹⁷ Wildlife attracted to the food and strange packaging in their habitat may become exposed to leftover rodenticide nearby.¹¹⁸

Studies of unauthorized grows in California found them to most likely be using largely federally-restricted anticoagulant rodenticides.¹¹⁹ A recent study found that the presence of these anticoagulant rodenticides was directly linked to mortality in some animals and likely affecting animal fitness.¹²⁰ Specifically, researchers found anticoagulant rodenticides in fisher populations—possibly impacting fitness—and likely causing secondary poisoning in northern spotted owl and barred owl populations.¹²¹ Another study found rodenticide poisoning in bears, foxes, squirrels, deer, and passerine birds.¹²² There could even be further impacts on predators of these animals that receive secondary poisoning by digesting an animal that ingested anticoagulant rodenticides.¹²³

The environmental impacts caused by cannabis cultivation overlap and even amplify environmental harms from other sources. The northern spotted owl provides a telling example of this dynamic. One study found

¹¹² See *id.* (explaining that state regulations regarding pesticides vary and may not be based on science).

¹¹³ See *infra* Part III(E) (detailing these risks).

¹¹⁴ Wartenberg et al., *supra* note 60, at 101–02.

¹¹⁵ See, e.g., Hope M. Babcock, *Illegal Marijuana Cultivation on Public Lands: Our Federalism on a Very Bad Trip*, 43 *ECOLOGY L. Q.* 723, 724–25 (2016) (“The vast majority of marijuana production occurs out-of-doors on remote public and tribal lands, with the result that the activities are largely unseen and, therefore, unregulated.”) (internal citation omitted).

¹¹⁶ *Pesticide Use in Cannabis Cultivation Threatens California Spotted Owls*, S. YUBA RIVER CITIZENS LEAGUE (Nov. 4, 2022), <https://perma.cc/D7WG-CVNC>.

¹¹⁷ *Trespass Cannabis Cultivation Research and Cleanup Projects*, CAL. DEP’T OF FISH & WILDLIFE (May 20, 2020), <https://perma.cc/X62E-RW86>.

¹¹⁸ *Id.*

¹¹⁹ Wartenberg et al., *supra* note 60, at 101.

¹²⁰ *Id.* at 101–02.

¹²¹ *Id.* at 102.

¹²² Alan Franklin, Peter C. Carlson, Angela Rex, Jeremy T. Rockweit, David Garza, Emily Culhane, Steven F. Volker, Robert J. Dusek, Valerie I. Shearn-Bochsler, Mourad W. Gabriel & Katherine E. Horak, *Grass is Not Always Greener: Rodenticide Exposure of a Threatened Species Near Marijuana Growing Operations*, 11 *BMC RSCH. NOTES*, 2018, at 2.

¹²³ See, e.g., *id.* (providing an example of secondary poisoning in northern spotted owls).

rodenticide compounds in about 70% of northern spotted owl carcasses in California's remote forests.¹²⁴ This is particularly concerning as the northern spotted owl is listed as a "threatened" species under the Endangered Species Act,¹²⁵ and conservationists have already been ringing the alarm on other threats to the northern spotted owl that warrant its classification as "endangered."¹²⁶ Northern spotted owl populations have been declining at about a 3.8% rate annually over the last few decades,¹²⁷ and rodenticides are yet another threat that may continue the decline to their population and habitat.

E. Air Quality

Agriculture of all kinds impacts air quality. Generally, the agricultural sector has contributed to air pollution through the emission of methane and nitrous oxide—among other gases—categorized as biogenic volatile organic compounds (BVOCs).¹²⁸ BVOCs are hydrocarbons that serve as precursors to the release of ozone.¹²⁹ Agricultural activities such as animal husbandry or food transportation release these gases.¹³⁰ However, in cannabis cultivation, BVOCs may be released from the plant's terpenes.¹³¹ This, along with pollution from particulate matter, contributes to ozone formation more directly.¹³²

The odor that accompanies large-scale cannabis production likewise contributes to poor air quality. Many experience it as a public nuisance.¹³³ Due to zoning laws and other factors, odor issues disproportionately affect lower-income communities.¹³⁴ Residents in some communities report

¹²⁴ Mourad W. Gabriel, Lowell V. Diller, John P. Dumbacher, Greta M. Wengert, John M. Higley, Robert H. Poppenga, & Shannon Mendia, *Exposure to Rodenticides in Northern Spotted and Barred Owls on Remote Forest Lands in Northwestern California: Evidence of Food Web Contamination*, 13 AVIAN CONSERVATION & ECOLOGY, 2018, at 2.

¹²⁵ 50 C.F.R. §§ 17.1–17.95 (2021). The northern spotted owl is listed as threatened everywhere it is found. *Id.* § 17.11.

¹²⁶ Monica Samayoa, *Northern Spotted Owl's Endangered Species Act Status Will Remain Unchanged*, OR. PUB. BROAD. (Dec. 15, 2020), <https://perma.cc/CG54-N7DX> (discussing how the Fish & Wildlife Service declined to give the spotted owl additional protection by refusing to list it as endangered).

¹²⁷ Katie M. Dugger et al., *The Effects of Habitat, Climate, and Barred Owls on Long-Term Demography of Northern Spotted Owls*, 118 CONDOR 57, 97 tbl.26 (2016).

¹²⁸ Viney P. Aneja, William H. Schlesinger, & Jan Willem Erisman, *Effects of Agriculture Upon the Air Quality and Climate: Research, Policy, and Regulations*, 43 ENV'T. SCI. & TECH. 4234, 4234 (2009) (showing that nationally, agricultural emissions are about 29% methane and 72% nitrous oxide); *BVOC (Biogenic Volatile Organic Compound) Emission Responses to Climate Change*, CONSIGLIO NAZIONALE DELLE RICERCHE, <https://perma.cc/CH2T-CYYV> (last visited Mar. 19, 2023) (explaining that methane and nitrous oxide are BVOCs).

¹²⁹ Wartenberg et al., *supra* note 60, at 100.

¹³⁰ *Id.* at 102.

¹³¹ *Id.*

¹³² *Id.*

¹³³ Garriott, *supra* note 1, at 1008–09.

¹³⁴ *Id.* at 1010–12.

experiencing negative health effects, including headaches and burning throats.¹³⁵ They also report feeling like they cannot go outdoors because the odor is so strong and unpleasant.¹³⁶

Air quality is also an issue within indoor cultivation facilities. In addition to the BVOCs, pesticides and mold also impact air quality.¹³⁷ The higher mold levels stem from the 70% humidity rate needed in indoor cultivation.¹³⁸ Indeed, workers in indoor cultivation may be exposed to five times the levels of mold as compared to outdoor grows.¹³⁹ This can have a significant impact on the health of workers. In a 2018 study of the health effects of indoor cannabis cultivation in Colorado, workers reported skin and eye irritation, headaches, dizziness, and chest tightness.¹⁴⁰ Additionally, indoor cultivation operations that use butane have a higher chance of ozone concentration in an indoor facility.¹⁴¹ Individuals exposed to high concentrations of ozone over extended periods of time may be more likely to experience respiratory issues such as irritated lungs, shortness of breath, and the exacerbation of existing chronic health conditions like asthma.¹⁴² Training and awareness around indoor air quality appears, at best, uneven across the industry. In another 2018 Colorado study, several respondents claimed that their employer did not train them on the occupational health hazards of indoor cultivation, while a smaller percentage did report receiving more structured, continuous training.¹⁴³

¹³⁵ *Id.* at 1012.

¹³⁶ *Id.* at 1013. Neighbors to cultivation farms are also starting to bring civil Racketeer Influenced and Corrupt Organizations (RICO) Act, 18 U.S.C. §§ 1961–68 (2018), claims against cultivators. In Oregon, a resident living adjacent to a cultivator alleged RICO harms caused by the cultivator’s “interfer[ence] with [the neighbor’s] use and enjoyment of [their] property, burdening it with noxious odors, diminishing its market value and making it more difficult to sell.” *Underwood v. 1450 SE Orient, LLC*, No. 3:18-cv-1366, 2019 WL 1245805 at *2 (D. Or. Jan. 28, 2019), *report and recommendation adopted*, No. 3:18-cv-01366, 2019 WL 1246194 (D. Or. Mar. 18, 2019). The case is on-going. *See also* *Shultz v. Derrick*, 369 F. Supp.3d 1120, 1123 (D. Or. 2019) (dismissing neighbor plaintiff’s complaint that adjacent cannabis farms negatively impacted plaintiff’s property value).

¹³⁷ Amy Robinson & Blakely T. Vogel, *Employer Alert: Asthma in the Cannabis Workplace*, MILLER NASH LLP (Oct. 31, 2022), <https://perma.cc/F6AF-DLD3>.

¹³⁸ Niels Nautrup, *The Impact of Uncontrolled Humidity on Cannabis Growing*, DANThermGroup (Apr. 25, 2022), <https://perma.cc/6YY4-BMHW>.

¹³⁹ Niloufar Ghodsian, *Health Effects of Exposure to Cannabis in Workers in an Indoor Growing Facility 10* (2019) (M.S. thesis, Univ. of Washington), <https://perma.cc/4RCM-H6AU>.

¹⁴⁰ Kevin M. Walters, Gwenith G. Fisher, & Liliana Tenney, *An Overview of Health and Safety in the Colorado Cannabis Industry*, *AM. J. OF INDUS. MED.*, 451, 456 tbl.5 (2018); *see also* discussion *supra*, notes 108–127 (noting prevalence of pesticides in cannabis cultivation).

¹⁴¹ Wartenberg et al., *supra* note 60, at 102.

¹⁴² Robinson & Vogel, *supra* note 137.

¹⁴³ Ghodsian, *supra* note 139, at 12–13.

F. Changes in Surface Land

Cannabis plants need light to grow. Therefore, outdoor cannabis cultivation operations often require removing trees or even clearcutting large sections of forest.¹⁴⁴ Forest tree canopies are not just biodiverse ecosystems for flora and fauna, they also serve as carbon storage for greenhouse gas emissions.¹⁴⁵ When outdoor growers—both permitted and unpermitted—cut forest trees, they reduce forest canopy. While further research is needed on the carbon effects of canopy clearcutting for cannabis cultivation, a recent study found that tree canopy reduction from both human degradation and human-induced climate change over a five-year span not only removed stored carbon in that canopy but also contributed 0.8 gigatons of carbon emissions.¹⁴⁶ One estimate attributed 1.1% of forest canopy area loss in California between 2000 and 2013 to cannabis grow sites.¹⁴⁷ This is arguably small compared to other sources of loss; by comparison, timber harvesting accounted for about 53.3% of forest canopy loss in the same time period.¹⁴⁸ As a booming industry, however, cannabis cultivation has the potential to further fragment forest canopy and degrade the native habitat of many species.¹⁴⁹

Outdoor cultivation facilities, particularly those unauthorized, impact the land in other ways. Workers drive on previously undisturbed land, introduce human waste without sanitation (often in the context of coercing trafficked workers to live in squalid conditions without access to toilets), and litter the area with trash and waste.¹⁵⁰ For example, California law enforcement discovered unpermitted cultivators who disposed their water pumping generators' used oil in a patch of redwood trees just one hundred yards from a drinking-water source.¹⁵¹ The cultivators' lack of generator maintenance led to the machines leaking "diesel directly into the ground."¹⁵² Unpermitted cultivators also use heavy-duty earthmoving equipment to clearcut and grade forest canopy and land.¹⁵³ This causes significant erosion and fragments the natural

¹⁴⁴ Van Butsic, Jennifer K. Carah, Matthias Baumann, Connor Stephens, & Jacob C. Brenner, *The Emergence of Cannabis Agriculture Frontiers as Environmental Threats*, 13 ENV'T RSCH. LETTERS, Dec. 2018, at 2.

¹⁴⁵ *Forest Carbon Status and Trends*, U.S. FOREST SERV. (Dec. 2021), <https://perma.cc/N3HE-99EX>.

¹⁴⁶ Akihiro Nakamura et al., *Forests and Their Canopies: Achievements and Horizons in Canopy Science*, 32 TRENDS IN ECOLOGY & EVOLUTION 438, 438 (2017).

¹⁴⁷ Wartenberg et al., *supra*, note 60, at 100.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ Bustic et al., *supra* note 144, at 9 (2018); Vickie Aldous, *Illegal Pot Fuels "Narco-slavery" in Rogue Valley*, MAIL TRIBUNE (SEPT. 21, 2021), <https://perma.cc/Q6PY-VXHG>.

¹⁵¹ Dana Kelly, *Bringing the Green to the Green: Would the Legalization of Marijuana in California Prevent the Environmental Destruction Caused by Illegal Farms?*, 18 HASTINGS ENV'T. L. J. 95, 96–97 (2012).

¹⁵² *Id.* at 97 (internal citation omitted).

¹⁵³ Katherine Curl Reitz, *An Environmental Argument for a Consistent Federal Policy on Marijuana*, 57 ARIZ. L. REV. 1085, 1094 (2015).

habitat. Since this clearcutting often occurs near streams and rivers, the erosion run-off runs directly into water sources.¹⁵⁴ This contributes to water pollution, another significant problem.

G. Water Pollution

Like other crops, and as noted above, cannabis requires nutrients and pesticides to be grown at a commodity scale.¹⁵⁵ Its demand for basic nutrients such as nitrogen, phosphorus, and potassium is considerable, as is its demand for pesticides. A 2019 study of cannabis cultivation in California found that cultivators used “more than [thirty] different soil amendments and foliar nutrient sprays.”¹⁵⁶ All of these applications carry the risk of contaminating waterways.

The entrance of these various pollutants into waterways can cause algae blooms that pose a danger to aquatic wildlife as the algae absorbs oxygen from the water.¹⁵⁷ On the west coast of the United States, such pollution poses a significant threat to the spawning and rearing habitat for threatened coho salmon.¹⁵⁸ The coho salmon population is of particular concern, as it was already declining due to toxins entering the water.¹⁵⁹ Researchers have linked a common tire chemical to an increasing number of salmon dying in streams before they can spawn.¹⁶⁰

Legalization holds the promise of better-regulating licensed cultivation operations to minimize environmental harm. Conversely, unauthorized cultivation provides no such opportunity. The size of the unauthorized cannabis industry is difficult to estimate. In Oregon, anecdotal estimates placed the number of unauthorized cultivator operations in the hundreds within a single county¹⁶¹ and in the thousands throughout the state.¹⁶² Whatever the real size may be, it is large enough to have a significant statewide impact.¹⁶³ It is also proving to cause other types of harms. Oregon’s Jackson County attributed a wave of stabbings, theft, robberies, burglaries, homicide, sex crimes, and automobile accidents to the rise of unauthorized cultivators.¹⁶⁴ As mentioned, these

¹⁵⁴ Jennifer K. Carah et al., *High Time for Conservation: Adding The Environment to The Debate on Marijuana Liberation*, 65 *BIOSCIENCE* 822, 822–23 (2015).

¹⁵⁵ See *supra* note 61 and accompanying text.

¹⁵⁶ Zheng et al., *supra* note 91, at 3.

¹⁵⁷ *The Effects: Dead Zones and Harmful Algal Blooms*, U.S. ENV’T PROT. AGENCY (Jan. 20, 2023), <https://perma.cc/9KNV-Z7LB>.

¹⁵⁸ NOAA FINAL RECOVERY PLAN, *supra* note 102, at 3-49, 3-68.

¹⁵⁹ *Id.* at 1-5.

¹⁶⁰ Zhenyu Tian et al., *A Ubiquitous Tire Rubber-Derived Chemical Induces Acute Mortality in Coho Salmon*, 371 *SCIENCE* 185, 185 (2021).

¹⁶¹ Andrew Selsky, *Overwhelmed by Illegal Pot, Oregon County Declares Emergency*, ASSOCIATED PRESS NEWS (Oct. 13, 2021), <https://perma.cc/2PXU-HLAU>.

¹⁶² Andrew Selsky, *Awash in Illegal Pot Grows, Oregon Plans Millions for Relief*, ASSOCIATED PRESS NEWS (Dec. 16, 2021), <https://perma.cc/BA6A-PGAS>.

¹⁶³ *Id.*

¹⁶⁴ *Oregon State Police Seize 250 Tons of Illegal Marijuana*, ASSOCIATED PRESS NEWS (Nov. 20, 2021), <https://perma.cc/6VTQ-2FY5>.

enterprises also traffic migrants—largely undocumented—to work in their farms,¹⁶⁵ and it is this group of vulnerable workers who are most at risk of exposure to the toxins and other hazardous work conditions described above.¹⁶⁶ Some even attribute the general labor shortage in the agricultural sector to criminal enterprises, which can incentivize workers with higher pay.¹⁶⁷

H. State Responses

States are increasingly aware of these problems. While the legal industry provides regulations and other enforcement mechanisms, unauthorized operators pose a different challenge. Perhaps ironically, states have begun increasing investments in drug enforcement to address these challenges. For instance, Oregon created the Illegal Marijuana Market Enforcement Grant Program to provide local jurisdictions with funding for more law enforcement to combat unauthorized grows.¹⁶⁸ In 2021, the state legislature approved additional funding for the program, as well as \$25 million in emergency spending to help combat what was termed the “humanitarian crisis.”¹⁶⁹ The legislation authorized the Oregon Criminal Justice Commission to grant funds to counties seeking additional law enforcement resources.¹⁷⁰ County commissioners requested funding for law enforcement officers and increased staffing for law enforcement agencies; additionally, the Oregon Water Resources Department requested funding for more assistant water masters.¹⁷¹ The hope was that having more human power to tackle the water theft would at least help identify where water was being diverted without a permit.¹⁷² Yet, no government body requested funding to address the environmental

¹⁶⁵ Sophia Prince, *Southern Oregon Investigators Suspect Human Trafficking, Forced Labor at Cannabis Farm*, OR. PUB. BROAD. (Aug. 20, 2021), <https://perma.cc/9XK2-2BZG>.

¹⁶⁶ Sally C. Moyce & Marc Schenker, *Migrant Workers and Their Occupational Health and Safety*, ANN. REV. PUB. HEALTH, Apr. 2018, at 353.

¹⁶⁷ Traute Moor, *Patchwork of Laws Hurts Cannabis Growers, Other Farmers*, MAIL TRIBUNE (Sept. 12, 2021), <https://perma.cc/ZBJ9-U3V5>.

¹⁶⁸ OR. CRIM. JUST. COMM’N, *ILLEGAL MARIJUANA MARKET ENFORCEMENT GRANT PROGRAM REPORT ii* (2022), <https://perma.cc/9377-J5Y7>.

¹⁶⁹ *Id.*; see Selsky, *supra* note 162 (“[T]he Oregon legislature dedicated \$25 million to help police, sheriff’s offices and community organizations pay for the ballooning costs of cracking down on the thousands of industrial-scale, illegal pot farms.”).

¹⁷⁰ S.B. 1544, 79th Leg. Assemb., Reg. Sess., at 10–11 (Or. 2018).

¹⁷¹ Vickie Aldous, *Jackson County Seeking \$7 Million to Tackle Illegal Pot*, MAIL TRIBUNE (Nov. 11, 2021), <https://perma.cc/C46R-S76W>; Erik Neumann, *Emergency Funding Request Made to Combat Illegal Marijuana Cultivation in Jackson County*, JEFFERSON PUB. RADIO (Nov. 24, 2021), <https://perma.cc/7SHU-88KL>; *2021-23 Agency Request Budget—Field Services Division*, OR. WATER RES. DEP’T 176, 194–95 (May 23, 2021), <https://perma.cc/M658-9H7M> (requesting funding for 5 additional water staff and watermasters to assist with all their required work and inspections).

¹⁷² Since receiving the funding, “[t]he Oregon Water Resources Department has seen a 160% increase in Notice of Violations” issued due, in large part, to the additional staffing. Tyler Myerly, *Oregon Water Resources Department Ramps Up Water Regulation at Illegal Marijuana Grows*, NEWS 10 (Oct. 18, 2022), <https://perma.cc/R6FY-EBF9>.

damages from building hoop houses, human waste left behind due to horrible working conditions, hazardous waste from pesticides and other toxic chemicals, or other dangerous materials used to build a cultivation operation.¹⁷³

California has also addressed the cannabis industry's environmental impact. The state designed new regulations to better manage licensed cultivators' water use, though an analysis has pointed out that unauthorized operators continue to present a challenge.¹⁷⁴ California's Siskiyou County has attempted to address this by banning trucks carrying one hundred gallons or more of water from roads leading to dry or arid tracks where unauthorized grows are more likely to be located.¹⁷⁵

Environmental issues are beginning to receive attention in other states as well. Vermont, for instance, has charged its Cannabis Control Board to work with the natural resources and state agriculture departments to recommend whether the legislature should adopt specific environmental or land use requirements for cannabis businesses.¹⁷⁶ The Cannabis Control Board is also tasked with recommending whether the state needs additional groundwater quality requirements to protect groundwater from overuse.¹⁷⁷

III. ENVIRONMENTAL JUSTICE

The environmental impact of commercial cannabis cultivation poses unique challenges and opportunities. One challenge is that most of the environmental harms associated with cannabis production are the result of growing at a commercial scale. This is particularly vexing since creating a commercial cannabis market is the foundation of both cannabis legalization and current social equity efforts in the United States.¹⁷⁸ Moreover, the persistence of the unauthorized industry in places like California and Oregon has shown that legalization alone is insufficient to eliminate the unauthorized market. Efforts to ramp up drug enforcement in Oregon suggest that it may be difficult to curtail the unauthorized industry without continued investments in the drug enforcement infrastructure. This conflicts with key principles of the legalization movement and might even be working at cross purposes with social equity and criminal justice reform efforts seeking to minimize the role of police

¹⁷³ Aldous, *supra* note 171; OR. ADMIN. R. 213-080-0050 (2022) (explaining how the legislation could fund such problems if requested).

¹⁷⁴ Christopher Dillis, Connor McIntee, Van Bustic, Lance Le, Kason Grady, & Theodore Grantham, *Water Storage and Irrigation Practices for Cannabis Drive Seasonal Patterns of Water Extraction and Use in Northern California*, J. ENV'T. MGMT., Oct. 2020, at 1, 9.

¹⁷⁵ Selsky, *supra* note 100. *See also* discussion *infra*, notes 240–250.

¹⁷⁶ S. 54, 164th Leg. Sess. § 869 (Vt. 2020).

¹⁷⁷ *Id.* § 847(5)(b).

¹⁷⁸ Robert Hoban, *The Critical Importance of Social Equity in The Cannabis Industry*, FORBES (Aug. 31, 2020), <https://perma.cc/8Y3E-E3P9>.

in cannabis.¹⁷⁹ At the same time, it is hard to envision how policymakers can mitigate the environmental and humanitarian harms resulting from unauthorized cultivation without such enforcement efforts under the current market-based approach.

But there is also an opportunity: taking the cannabis industry's environmental impact seriously has the capacity to enhance current social equity efforts. A key concept here is environmental racism, that is, "any policy, practice, or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or color."¹⁸⁰ The fight to acknowledge, redress, and dismantle these environmental inequities is the fight for environmental justice.¹⁸¹

Environmental racism can be usefully understood within the broader context of racial capitalism, which views the processes of racialization and capital accumulation as mutually constitutive insofar as both work to naturalize the social hierarchies each needs to survive.¹⁸² As Professor Jodi Melamed writes:

Capital can only be capital when it is accumulating, and it can only accumulate by producing and moving through relations of severe inequality among human groups These antinomies of accumulation require loss, disposability, and the unequal differentiation of human value, and racism enshrines the inequalities that capitalism requires.¹⁸³

Environmental racism is at work when it blends with public policy and industry practices to benefit privileged white populations, while shifting burdens towards people of color.¹⁸⁴ For instance, some evidence shows that the most important predictor of whether a community will have a hazardous landfill is its racial composition—more important than poverty, property values, and home ownership—disproportionately impacting Black and Brown communities.¹⁸⁵

One of the most prominent examples of environmental racism is that of Mossville, Louisiana. Mossville residents prided themselves on living

¹⁷⁹ Mehmet Zülfü Öner, *The Legalization of Drugs*, 7 ANKARA B. REV., 2014, at 113, 127–28.

¹⁸⁰ Robert D. Bullard, *The Threat of Environmental Racism*, 7 NAT. RES. & ENV'T, Winter 1993, at 23.

¹⁸¹ See *Environmental Justice*, U.S. ENV'T PROT. AGENCY (Jan. 10, 2023), <https://perma.cc/NF4D-7R8V> ("Environmental justice is the fair treatment and meaningful involvement of all people of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.").

¹⁸² Jodi Melamed, *Racial Capitalism*, 1 CRITICAL ETHNIC STUD., Spring 2015, at 76, 77.

¹⁸³ *Id.*

¹⁸⁴ Bullard, *supra* note 180, at 23.

¹⁸⁵ Michael Mascarenhas, Ryken Grattet, & Kathleen Mege, *Toxic Waste and Race in Twenty-First Century America: Neighborhood Poverty and Racial Composition in the Siting of Hazardous Waste Facilities*, 12 ENV'T & SOC'Y: ADVANCES IN RSCH. 108, 110 (2021); Robert D. Bullard, *Environmental Justice in the 21st Century: Race Still Matters*, 49 PYTHON 151, 151, 160 (2001).

in an area founded by Jack Moss, a formerly enslaved Black man.¹⁸⁶ Mossville was more than just a town. It was a self-sufficient Black community that offered a safe space for Black people throughout the Jim Crow era.¹⁸⁷ Beginning in the 1940s, however, oil and gas corporations built plants in and around Mossville.¹⁸⁸ These plants released toxic air emissions, contaminated soil and water, contributed to waste overflow, and cut the Mossville tree canopy.¹⁸⁹ Over time, these plants exposed the Black community to increased rates of cancer and other chronic conditions.¹⁹⁰ Follow-up tests on a small sample size of former Mossville residents showed that they had dioxin levels in their blood about three-times higher than that of the general U.S. population.¹⁹¹

Eventually, the community could no longer live in the toxic environment, so residents began to accept oil and gas corporations' offers to purchase their homes and land.¹⁹² But those corporations paid, on average, 40% less for homes in Mossville, a predominantly Black community, as compared to the predominantly white, adjacent town.¹⁹³ Profit-driven, environmentally-neglecting corporations forced a once thriving Black community—with potential to build intergenerational wealth for its families—out of its hometown, all permitted and aided by the government that was supposed to look after it. The oil and gas corporations' treatment of Mossville's residents and the natural environment demonstrates racial capitalism's propensity to exploit and commodify people and the natural world.

White communities can suffer environmental injustice as well. Indeed, the same processes of racialization that draw foundational distinctions such as white and Black also create stratified distinctions within the category of whiteness itself. These, in turn, conjugate with the particularities of place to shape the distribution of environmental risk. For instance, white residents of rural communities like the coal fields of Appalachia are subject to a “double racialization;” they are seen as “both

¹⁸⁶ Ayden Rudd, *What Happened to Mossville Louisiana?*, NBC COMEDY PLAYGROUND (Jan. 20, 2021), <https://perma.cc/AY6D-MNKE>.

¹⁸⁷ UNIVERSITY NETWORK FOR HUMAN RIGHTS, “THEY DIDN’T PAY US FOR OUR MEMORIES”: ENVIRONMENTAL RACISM, FORCED DISPLACEMENT, AND THE INDUSTRIAL BUYOUT OF MOSSVILLE, LOUISIANA 7–9 (2021) [hereinafter UNHR Mossville Report], <https://perma.cc/S8VQ-YVD4>.

¹⁸⁸ *Id.* at 10.

¹⁸⁹ *Mossville, Louisiana: Environmental Racism in “Cancer Alley,” United States*, ENV’T JUST. ATLAS (Mar. 25, 2018), <https://perma.cc/7R42-6JH6>.

¹⁹⁰ UNHR Mossville Report, *supra* note 187, at 11.

¹⁹¹ GREENPEACE, DIOXIN AND PCB CONTAMINATION IN MOSSVILLE, LOUISIANA: A REVIEW OF THE EXPOSURE INVESTIGATION BY ATSDR 1 (2000), <https://perma.cc/W3M3-VZMK>.

¹⁹² Heather Rogers, *Erasing Mossville: How Pollution Killed a Louisiana Town*, THE INTERCEPT (Nov. 4, 2015), <https://perma.cc/ZWP6-AE45> (“Before Sasol’s offer there had been no hope of getting away from the pollution, because no one would have bought a house so close to the plants.”).

¹⁹³ UNHR Mossville Report, *supra* note 187, at 22, 60, n.204.

white and not quite so.”¹⁹⁴ Others stereotype them as “hillbillies” or “white trash,” terms that have long signified a “degraded form of whiteness.”¹⁹⁵ These representations are synchronous with destructive environmental practices. The devalued whiteness of local residents enabled the dispossession and extraction of the coal economy.¹⁹⁶ This in turn left a scarred and trashed landscape that only served to reinforce local “white trash” racial identities.¹⁹⁷ As the coal economy recedes, these same places are becoming sites for various “waste management” practices ranging from trash dumps and incinerators to prisons and jails.¹⁹⁸

All of this points to a key element of environmental racism: the inseparability of race and place. The coal fields of Appalachia may have a unique history, but they are part of a larger patchwork of “sacrifice zones” that disproportionately bear the environmental burdens of economic development.¹⁹⁹ For instance, rural areas, which are predominantly white,²⁰⁰ are a privileged sites for locating “dirty jobs” like feedlots and concentrated animal feeding operations, whose smell alone make them virtually impossible to site near communities of any significant size—or, for that matter, power.²⁰¹ Rural communities have also become privileged sites for locating institutions of human confinement such as prisons and jails.²⁰²

Urban communities can serve as sacrifice zones as well. These communities are disproportionately communities of color and play host to dirty industries that other places would not tolerate.²⁰³ Furthermore, many of these communities are deeply connected. Often, it is a relationship of inequality that connects them, such as the cities on the east coast that use the Appalachian Mountains as a trash dump.²⁰⁴ Other times, a common experience of inequality unites communities. For instance, opposition to prison construction in California brought together urban residents of East Los Angeles and the Bay Area, the homeplaces of many of the state’s prisoners, and rural residents of the San Joaquin

¹⁹⁴ JUDAH SCHEPT, *COAL, CAGES, CRISIS: THE RISE OF THE PRISON ECONOMY IN CENTRAL APPALACHIA* 25 (2022).

¹⁹⁵ *Id.* at 21, 25.

¹⁹⁶ *Id.* at 21.

¹⁹⁷ *Id.* at 62–63.

¹⁹⁸ *Id.* at 62–64.

¹⁹⁹ Olivia Weeks, *Q&A: How Rural America’s Assets Have Been Systematically Stripped Away*, *DAILY YONDER* (Aug. 26, 2022), <https://perma.cc/WU77-V72J>.

²⁰⁰ Kenneth Johnson & Daniel Lichter, *Growing Racial Diversity in Rural America: Results from the 2020 Census*, *UNIV. OF N.H. CARSEY SCH. OF PUB. POLY* (May 25, 2022), <https://perma.cc/79KS-6TJQ> (“Rural America remains predominantly non-Hispanic White with 35 million White residents constituting 76 percent of the rural population according to the 2020 Census.”).

²⁰¹ Rose Braz & Craig Gilmore, *Joining Forces: Prisons and Environmental Justice in Recent California Organizing*, 96 *RADICAL HIST. REV.* 95, 95–96 (2006).

²⁰² *Id.* at 96.

²⁰³ *Id.*

²⁰⁴ RONALD D. ELLER, *UNEVEN GROUND: APPALACHIA SINCE 1945* 254 (2008) (toward the end of the twentieth century it became “cost effective for large companies to haul solid waste from cities in the Northeast to dump sites in rural communities in Appalachia”).

Valley, the site of the prison.²⁰⁵ Though the communities initially opposed the prison's construction for different reasons, working together, they found common cause in the fact that they were all low-income communities of color whom the prison would negatively impact.²⁰⁶

The use of an environmental justice framework for understanding prison construction illustrates the potential of using concepts like environmental racism and racial capitalism to understand the carceral state and efforts to challenge it. Of course, one of these efforts is cannabis legalization, which holds the promise of eliminating cannabis as a gateway into the criminal justice system, particularly for people of color. Taking an environmental justice approach to legalization means centering the connections between race and place in the context of capitalism. It extends the social equity framework that legalization proponents use by showing that those communities disproportionately impacted by cannabis prohibition may also bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations.²⁰⁷

Thus, attending to environmental justice in the context of cannabis legalization has the potential to extend and enhance the social equity paradigm as currently conceived. For instance, environmental racism could be included as a characteristic in the definition of disproportionately impacted communities. This could bring greater attention to the racial dimensions of environmental harm. It could also push the legal cannabis industry beyond current corporate appeals to "sustainability."²⁰⁸ Indeed, the cannabis industry should be inspired to set a new standard for corporate environmental responsibility that goes beyond current practices. Some market participants have even called for the industry to become explicitly anti-racist.²⁰⁹

Such efforts to extend and enhance social equity could start with the industry itself. The growth of the legal cannabis industry already bears traces of environmental racism.²¹⁰ For instance, in Colorado, the industry

²⁰⁵ Braz & Gilmore, *supra* note 201, at 104.

²⁰⁶ *Id.* at 98 ("The proximity of vigorous environmental justice activism to California's prison alley has helped activists from both movements see the similarities in our fights. Foremost among them has been the state-sanctioned imposition of toxic threats on the poor, people of color, and immigrants.") (internal citation omitted).

²⁰⁷ *EJ 2020 Glossary*, U.S. ENV'T PROT. AGENCY (Aug. 18, 2020), <https://perma.cc/6VU2-5ZKA> (the current environmental justice framework acknowledges the presence of "[m]inority, low-income, tribal, or indigenous populations . . . in the United States that potentially experience disproportionate environmental harms and risks.").

²⁰⁸ Joel Makower, *It's High Time for the Cannabis Industry to Embrace Sustainability*, GREENBIZ (Jul. 18, 2022), <https://perma.cc/Q224-X8LF>.

²⁰⁹ Jim Dissett, *Cannabis Industry Must Make Anti-racism a Conscious Action, Not a Marketing Tactic*, GLOBENEWSWIRE (Dec. 8, 2021), <https://perma.cc/TQ8F-D57Q>.

²¹⁰ See David Migoya & Ricardo Baca, *Denver's Pot Businesses Mostly in Low-Income, Minority Neighborhoods*, THE DENVER POST (Jan. 23, 2017), <https://perma.cc/E7HX-BXHJ> (highlighting how growing operations and dispensaries are often centered on traditionally Environmental Justice communities).

is not spread evenly around the state.²¹¹ Under state law, local jurisdictions can opt out of allowing the industry to operate in their area.²¹² In jurisdictions where the industry is allowed, a host of rules and regulations (zoning, building codes, etc.) limit where businesses like dispensaries and cultivation facilities can be located.²¹³ In Denver, these regulations have mapped onto existing patterns of environmental racism to create a disproportionate concentration of cannabis businesses in low-income communities of color.²¹⁴ Cultivation facilities in particular have concentrated in the city's industrialized North side.²¹⁵ This area is currently home to a Superfund site (a now-shuttered plant that had contaminated groundwater and soil with metal)²¹⁶ and a variety of odor-emitting industries, including a waste-water treatment facility, a coal-fired power plant, animal-rendering facilities, a wood treatment facility, asphalt manufacturers, a pet food manufacturer, and two smelters.²¹⁷

Local residents have complained about the concentration of cultivation facilities in their neighborhoods.²¹⁸ Unlike dispensaries, cultivation facilities are not required to maintain distance from sensitive locations such as churches and schools, and they are not subject to public hearings as part of the licensing process.²¹⁹ This gives residents limited opportunity to contest the placement of cultivation facilities in their communities, which often closely border or include areas zoned for industrial or commercial use.²²⁰

Cultivation facilities pose a particular problem because even with regulations, they can still impact air quality. For some residents, the odors are so strong that they cannot go outside.²²¹ They have reported everything from discomfort and annoyance to symptoms such as headaches and burning throats.²²² One resident said that the smell of

²¹¹ Michael Karlik, *Report: 4 Counties in Colorado are Cultivating Nearly 8 in 10 Marijuana Plants*, COLO. POL. (Sept. 18, 2020), <https://perma.cc/WPL6-QGZB>; see, e.g., *MED 2020 Annual Update*, COLO. DEP'T OF REVENUE: MARIJUANA ENF'T DIV. 6–7 (Sept. 17, 2021), <https://perma.cc/XU3V-X6UP> (showing the unequal distribution of marijuana plants across the counties of Colorado).

²¹² *Article XVIII Personal Use and Regulation of Marijuana*, COLO. SEC'Y OF STATE (Jun. 3, 2011), <https://perma.cc/2HSE-GBWJ>; COLO. CONST. art. XVIII, § 16(5)(f).

²¹³ Denise D. Payán, Paul Brown, & Anna V. Song, *County-Level Recreational Marijuana Policies and Local Policy Changes in Colorado and Washington State (2012–2019)*, 99 *MILBANK Q.* 1132, 1137 (2021).

²¹⁴ Migoya & Baca, *supra* note 210.

²¹⁵ Esteban L. Hernandez, *All the Places Your Weed is (Commercially) Grown in Denver*, DENVERITE (Jan. 8, 2020), <https://perma.cc/35W4-49UY> (“Elyria Swansea [a community of predominantly low-income people of color] seemed to be getting what advocates saw as a disproportionate amount of retail and growing facilities.”).

²¹⁶ *Superfund Site: Vasquez Boulevard and I-70 Denver, CO*, U.S. ENV'T PROT. AGENCY, <https://perma.cc/Q97U-3UTE> (last visited Mar. 19, 2023).

²¹⁷ Garriott, *supra* note 1, at 1011.

²¹⁸ *Id.* at 1012.

²¹⁹ *Id.* at 1011.

²²⁰ *Id.*

²²¹ *Id.*

²²² *Id.* at 1012.

marijuana was so strong around her daughters' school that she would tell her children not to go outside: "They stay inside the cafeteria, they stay inside the school, which at the same time . . . I do feel bad because, I mean, they do want to come out especially if it's a nice day."²²³ Challenges from local residents have prompted the city of Denver to limit licensing of new businesses in communities with a disproportionate concentration of businesses and to make odor mitigation an explicit part of neighborhood redevelopment plans.²²⁴ Simultaneous attention to environmental justice and social equity concerns centered on the goal of mitigating environmental racism could enhance these small steps at the city level.

New Jersey provides an example of what might be possible. In 2020, it passed its Environmental Justice Law, which recognized that "low-income communities and communities of color have been subject to a disproportionately high number of environmental and public health stressors" and strives to "correct [that] historical injustice."²²⁵ True to environmental justice principles, the law requires the state to conduct an "Environmental Justice Impact Statement" when a new facility seeks state licensure to operate in, or an existing facility proposes to expand its current operations into, an "overburdened community."²²⁶ When a facility proposes to operate in or expand into one of these communities, the state must afford members from that community an opportunity to participate in the decision-making process—to comment on the facility's potential to worsen environmental and health stressors.²²⁷

In an Environmental Justice Impact Statement, the appropriate department must assess every potential environmental effect that the facility may have on the overburdened community.²²⁸ The state agency is then to notify community members about the proposed action (and must publish such notice in at least one local, non-English language newspaper), for the community members to help the state decide whether to approve the proposed facility action.²²⁹ While state legislators did not write the law to necessarily apply to the cannabis industry,²³⁰ New Jersey made good on its commitment to address environmental justice concerns across industries—including cannabis.²³¹

²²³ *Id.* at 1011 (internal citation omitted).

²²⁴ *Id.* at 1013.

²²⁵ N.J. STAT. ANN. § 13:1D-157(1) (West 2020).

²²⁶ *Id.* at § 13:1D-160(a)(1). An "overburdened community" is one with: (1) at least 35% low-income households; (2) at least 40% of its residents identifying as minority or Tribal members; or (3) at least 40% of households having limited English proficiency. *Id.* at § 13:1D-158. A "low-income" household is defined as one that meets or is "below twice the [national] poverty threshold." *Id.*

²²⁷ *Id.* at § 13:1D-160(a)(3).

²²⁸ *Id.* at § 13:1D-160(a)(1).

²²⁹ *Id.* at § 13:1D-160(a)(3).

²³⁰ See *id.* at § 13:1D-158 (defining the term "facility" that the Act applies to).

²³¹ Debra Kahn & Ry Rivard, *N.J. Gets Real on Environmental Justice*, POLITICO (Jun. 14, 2022), <https://perma.cc/AZ8G-WHGE>; *NJ Cannabis Industry to Focus on Environmental Considerations*, RIKER DANZIG LLP: ENV'T L. BLOG (Jun. 9, 2021), <https://perma.cc/HQR5-QEFB>.

The New Jersey Cannabis Regulatory Commission adopted Special Rules in 2021, in part to address the cannabis industry's environmental impact.²³² The Special Rules condition a prospective cannabis business's license on adoption of an environmental impact plan.²³³ The Special Rules require cannabis businesses to create and implement plans related to waste reduction, water usage reduction, biodynamic farming, sustainable packaging, or renewable energy systems.²³⁴

The Special Rules fail to expressly mention other environmental impacts (like air emissions) and do not name "environmental justice."²³⁵ However, we predict that the hypercompetitive licensing scheme may require businesses to be as comprehensive as possible in their environmental impact plans to have a higher chance of receiving a license. There is certainly room for New Jersey to merge its Environmental Justice Law and its Special Rules for environmental impacts of cannabis to realize the goals of social equity in cannabis. The state could well apply much of its community-focused provisions in the Environmental Justice Law to cannabis businesses and require that they too be subject to Environmental Justice Impact Statements when proposing to operate in or expand into overburdened communities. One issue this raises is that requiring such an analysis for cannabis businesses may detract retailers owned by people of color from operating in "overburdened communities" that may well fit in any of its other three criteria for Social Equity eligibility. This would lead to fewer individuals from those communities being employed in or otherwise accessing the regulated industry, taking away from the community reinvestment prong of the social equity paradigm.

Other states could follow in New Jersey's footsteps to create stronger, more comprehensive environmental requirements for the cannabis industry to play a more active role in achieving environmental justice. Cannabis environmental plans could be license-specific, meaning that players at the different steps of the seed-to-sale process would need to comply with different regulations due to their respective carbon footprints. For example, production facilities may be subject to stricter water and air quality standards, while storefront retailers may be subject to stronger waste-management standards. In addition, states can redirect some of their tax revenue earned from recreational cannabis sales into environmental justice initiatives. States can use that money to fund projects that will improve air quality in overburdened communities, invest in green infrastructure that will prevent rainwater runoff that degrades physical structures, or provide tax revenue to environmental organizations already doing much of this work.

²³² N.J. ADMIN. CODE § 17:30 (2021).

²³³ *Id.* at § 17:30-7.8.

²³⁴ Matthew A. Karmel, *NJ Takes Steps to Regulate Environmental Impacts of Cannabis*, LEXOLOGY (Aug. 26, 2021), <https://perma.cc/3J26-M9B7>.

²³⁵ *Id.*

Integrating environmental justice into cannabis may also take the form of traditional legal enforcement of environmental laws. For example, Environmental Democracy Project, an environmental justice group based in Oakland, California, recently sued an indoor cannabis cultivator for their unpermitted pollution of an environmental justice community under the Clean Air Act.²³⁶ As alleged, the cannabis cultivator, AREA51Zero, has an indoor-grow operation powered by two diesel generators the size of semi-trucks for which it did not obtain the requisite permit to operate.²³⁷ AREA51Zero's grow facility is located in West Oakland—a predominately “community of color that already suffers from high rates” of environmental pollution—and AREA51Zero's unpermitted operation pollutes particulate matter, volatile organic compounds, nitrous oxides, and greenhouse gas emissions.²³⁸ Environmental Democracy Project withdrew the case, and there is no publicly available information as to the reason. Still, this case is illustrative of the fact that part of addressing environmental justice concerns in cannabis may involve using the traditional environmental protection statutes to advocate for overburdened communities; that is, until Congress passes a federal environmental justice statute. Until then, litigation and government enforcement may be effective tools to bring industry players into compliance with environmental laws that they have skirted around for too long.²³⁹

However, balancing environmental conservation and recovery with social equity can be difficult. As noted earlier, to combat water-theft by unpermitted growers during a historic drought in the state, a California county announced a ban on trucks carrying cultivation-amounts of water into roads known to lead to unpermitted grows.²⁴⁰ Siskiyou is one of California's northern-most counties, away from major cities or big populations and embraced by national forests, making it prime cannabis cultivation land.²⁴¹

²³⁶ Complaint for Plaintiff at 1, *Env't Democracy Project v. AREA51Zero, LLC*, No. 4:22-cv-04761, 2022 WL 3574123 (N.D. Cal. Aug. 18, 2022); Clean Air Act, 42 U.S.C. §§ 7401–7671q (2018).

²³⁷ Complaint for Plaintiff at 1, *Env't Democracy Project*, 2022 WL 3574123.

²³⁸ *Id.* at 6.

²³⁹ See generally Jeanne Marie Zokovitch Paben, *Approaches to Environmental Justice: A Case Study of One Community's Victory*, 20 S. CAL. REV. OF LAW & SOC. JUST. 235, 239–42, 244–46 (2011) (noting the limitations of using traditional environmental law to achieve environmental justice, and outlining the use of federal, state, and local environmental law combined with scientific research, community organizing, and public policy to achieve environmental justice); see also Mehmet K. Konar-Steenberg, *Root and Branch: The Thirteenth Amendment and Environmental Justice*, 19 NEV. L.J. 509, 512 (2018) (arguing that the Thirteenth Amendment provides strong constitutional authority for environmental justice laws).

²⁴⁰ Selsky, *supra*, note 100; Skye Kinkade, *To Curtail Illegal Cannabis Grows, Water Trucks Aren't Allowed on These Siskiyou Roads*, MTSHASTA NEWS (May 4, 2021), <https://perma.cc/5JQG-YRW9>.

²⁴¹ *Lo v. Cnty. of Siskiyou*, 588 F.Supp.3d 850, 854 (E.D. Cal. 2021).

About 4,000 of the County's 43,000 residents are Hmong people, whom others have automatically stereotyped as criminals. They've been accused of playing an outsized role in expanding the unpermitted cannabis industry in the county and have been subject to pretextual traffic stops.²⁴² Nonetheless, Hmong people have built a community in the arid area.²⁴³ The County threatened that community's livelihood, however, when it prohibited residents from building new water wells, making it so the County residents had to rely on water delivery trucks, which later required a permit.²⁴⁴

Without the ability to drill wells or have water delivered unless the County granted a permit, residents had limited water options.²⁴⁵ These bans disproportionately impacted the Hmong people because the County retained discretion to deny a water permit application for any perceived violation of county law.²⁴⁶ Many Hmong people live in houses not approved by the County or do not have the requisite resources to be eligible for a water permit because water truck permits cannot go to unapproved single-family houses or locations on "unimproved land."²⁴⁷

As a result, many Hmong residents in the County have lost their farmland and farm animals, used for sustenance, and have resorted to filling empty gallon-jugs from a local stream.²⁴⁸ Because of this unequal impact, the Eastern District of California enjoined the County from enforcing the water-well and truck ban, for violating the Hmong peoples' Equal Protection rights.²⁴⁹ The potential disparate impact from the water ban and the history leading up to the ban was enough to show that the County may have intended to discriminate against the Hmong by enacting the water ban.²⁵⁰

The story of the Hmong people highlights the need for governments to adopt environmental justice frameworks into every environmental action. However, by taking a colorblind and "tough on crime" approach to environmental protection, Siskiyou County nearly left the "Hmong community . . . without water for their basic needs."²⁵¹ Oregon and other jurisdictions attempting to address water-theft, or other environmental degradation, and other unpermitted operations should take note and take a more intentional, socially and racially, conscious approach. Only then

²⁴² Dani Anguiano, *I Don't Believe Anyone is Safe: Drought Rules Spark Accusations of Racism in California Outpost*, THE GUARDIAN (Aug. 21, 2021), <https://perma.cc/ER9D-FEVD>.

²⁴³ *Lo*, 588 F.Supp.3d at 857.

²⁴⁴ *Id.* at 858–59.

²⁴⁵ *See id.* at 858 (Residents of Shasta Vista and the Hmong Community "relied on water delivered by truck from one or two wells on nearby farms[]").

²⁴⁶ *Id.* at 860.

²⁴⁷ *Id.* at 861.

²⁴⁸ *Id.* at 863.

²⁴⁹ *Id.* at 854.

²⁵⁰ *Id.* at 871.

²⁵¹ *Id.*

can society both protect the precious environment and prevent repeating racist practices that made environmental justice an afterthought.

CONCLUSION

The social equity paradigm in cannabis legalization contains three main elements: (1) facilitating access to the industry; (2) removing criminal records; and (3) investing tax revenue in disproportionately impacted areas. Advocates of the social equity paradigm insist that those disproportionately harmed by cannabis prohibition and by the broader War on Drugs should disproportionately benefit from its legalization. Despite recent court decisions questioning the constitutionality of social equity programs that explicitly prioritize applicants on the basis of race, the social equity paradigm continues to shape legalization in the United States and beyond.²⁵²

To date, environmental concerns have not been part of the push for social equity. This is a problem, given growing awareness of the environmental impact of the cannabis industry. It is also an opportunity, as the cannabis industry is well-positioned to be a leader in achieving environmental justice. In addition to implementing environmentally conscious business practices into all levels of the market, expanding the social equity paradigm to include issues like environmental justice could enhance current social equity efforts and provide new pathways to achieve the ends of social equity within cannabis and beyond. Jurisdictions could supplement or rework their social equity cannabis license criteria to include communities who were the targets and victims of environmental racism. Social equity programs could also condition licenses on the recipient implementing a comprehensive, environmentally conscious operation to limit, reduce, or remedy their environmental impact, especially if they will be in or near environmental justice communities. Whatever form it takes, the primary goal should be to prevent the displacement or exploitation of vulnerable and marginalized communities in the name of economic development.

As a matter of procedural rights, environmental justice also requires that the targets of environmental injustice have an active voice in shaping the future. This could work in various ways, including by having community representatives in charge of the license-administration scheme, making all information about proposed environmental projects and their health effects accessible in various languages and mediums to ensure affected community members have knowledge about the proposal, and more. At the end of the day, environmental justice should be about what the affected community wants, not what a government official or industry player wants. Retaining community autonomy is a core principle of environmental justice.

²⁵² Garriott & Garcia-Fuerte, *supra* note 2, at 59–60.

Adopting an environmental justice framework for cannabis requires a recognition that race is inextricably intertwined with environmental injustice. Juxtaposed with the racialized capitalism rooted in the market-based model of legalization that perpetuates environmental and other injustices, environmental justice shifts the social equity paradigm in cannabis by prioritizing the health and well-being of people and the natural environment over wealth accumulation. In other words, the fight for environmental justice is also the fight for racial justice for which the social equity paradigm strives.

Incorporating an environmental justice framework into the current social equity paradigm may also fortify its constitutionality because it would retain a race-conscious approach without expressly using race. Using proxies for race such as proximity to hazardous facilities, actual and potential health risks due to that proximity, socioeconomic status of the community, historical systemic marginalization of the community through redlining and gerrymandering, access to basic services and public amenities—among many other factors—will undoubtedly keep racial and social equity at the center of environmental justice laws and policies. Since the focus during cannabis licensing and implementation of other environmental justice practices will be on factors other than race exclusively, embedding environmental justice criteria into the social equity paradigm may be what the programs need to save their race-conscious efforts.²⁵³ After all, with this approach, race will not be used as a determinative factor in environmental justice decisions, but will rather serve to inform decision-makers in their final decision. The Supreme Court has upheld this approach of considering race as a factor when it is part of a greater, more holistic consideration in government action.²⁵⁴

At the same time, advocates for environmental justice in cannabis should not be limited to legal routes as a means of maintaining the social equity paradigm. The power of community-based organizing, public education, media campaigns, and regulatory reform all go beyond traditional legal routes to achieve environmental justice. The fight for environmental justice in cannabis must use all tools available, legal and non-legal, to successfully redress environmental injustices and work towards a more equitable, sustainable, and practical approach to cannabis legalization.

²⁵³ See, e.g., *Tx. Dep't of Hous. & Cmty. Affairs v. Inclusive Communities Project, Inc.*, 576 U.S. 519, 546 (2015) (“[M]ere awareness of race in attempting to solve the problems facing inner cities does not doom that endeavor at the outset.”). Though it is important to note that the Supreme Court’s upcoming decisions concerning the use of affirmative action in higher education admissions schemes may influence the legal analysis for the constitutionality of using environmental justice as a proxy for race. See *Students for Fair Admissions v. President & Fellows of Harvard*, 142 S. Ct. 895 (Jan. 24, 2022) (granting certiorari over a Title VI civil rights action against Harvard College).

²⁵⁴ *Parents Involved in Cmty. Sch. v. Seattle Sch. Dist. No. 1*, 551 U.S. 701, 722 (2007).